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Characteristics of Firms that Commit Fraud

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CHARACTERISTICS OF FIRMS THAT COMMIT FRAUD

by

Genie Hanson

**Thesis submitted in partial fulfillment
of the requirements for the degree**

of

**HONORS IN UNIVERSITY STUDIES
WITH DEPARTMENT HONORS**

in

Accounting

Approved:

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**UTAH STATE UNIVERSITY
Logan, UT**

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Honors Thesis

Characteristics of Firms that Commit Fraud

Genie Hanson

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Utah State University

Executive Summary

This research paper consists of an analysis of all issued AAERs from September 1995 through October 2003. It discusses who commits the fraud, the types of fraud committed, and the interaction of fraud types and firm types.

Research Procedure

An assistant professor of Accounting, Cindy Durtschi, and I first looked at 1143 AAERS. We created a table, which listed the name of the company, the AAER No, and the date issued, if fraud was mentioned, the dates fraud occurred, and what type of fraud it was. Originally, we based the type of fraud off of H. Schlitz 7 categories of fraud. They were the following:

1. Recording revenue too soon or of questionable quality.
2. Recording bogus revenue.
3. Boosting income with one time gains.
4. Shifting current expenses to later or earlier periods.
5. Failing to record or improperly reduce liabilities.
6. Shifting current revenue to a later period.
7. Shifting future expenses to the current period as a special charge.

While searching through the AAER's, there were some types of fraud that did not fit into these categories. So we came up with 7 different types of fraud based off the old ones. They were the following:

1. Revenue Recognition (Net income to high by falsely increasing revenues)
 - to soon
 - bogus
 - no economic substance
 - shifting to wrong periods
 - side agreements
2. Expense Fraud (Net Income to high by falsely decreasing expenses)
 - not recording expenses
 - shifting expenses to wrong periods
3. One-Time (Restructuring) Gains
 - Big Bath
 - Bogus or improper one time gains
 - Bogus or improper one time charges
 - taking improper expenses
4. Failing to record Liabilities
5. Miscellaneous
6. Failure to record losses
7. Record more assets

After looking through all AAERS, we took out the AAERS with incomplete information or AAERS that were charging the auditors. This left us with 1039 AAERS. We then took out the companies mentioned more than once, leaving only one instance

per company. This left us with 358 companies to analyze and do statistical analysis on.

Lastly, descriptive statistics were found using the SAS system.

Analysis

Graph 1

AAERS Firm comparison with the industry

Graph 1 shows the number of instances and the percentage of firms that had stats above or below the median for the industry. This graph shows that 69 percent of firms had a market capitalization (number of shares * price per share) above the median market capitalization for their industry. Sixty-three percent had more net sales than their industry median, while 65 percent had more total assets and number of employees than their industry medians. This implies that either more large firms commit fraud or the SEC is more likely to issue an AAER to a large firm because it may not be worth their time or money to go after smaller companies. Therefore, this may not be an accurate correlation because smaller firms may be committing more fraud but have not been caught or cited.

Eighty-percent of firms that receive AAERs have research and development expenditures that are greater than their industry median, nearly 60 percent have a current ratio (current assets/current liabilities) larger than the median for their industry while 65 percent have interest coverage ratios (income before extraordinary items + income taxes)/interest expense) larger than their industry. This implies that firms that commit fraud are liquid, and have fewer interest payments than others have in their industry. There is further evidence that these firms have less debt than others do in their industry because of their low debt/equity ratios. Eighty-three percent have a debt/equity ratio lower than the median for their industry. The large R & D expenditures may be because

the firms are large or it may be that the types of firms that commit fraud are new or high-growth firms. This will be explored later.

Graph 2

Firms VS the firm Industry differences

Graph 2 sorts firms by type of fraud, and compares the financial ratios and statistics between firms and their industry. The top panel shows statistics for all fraud firms and their industry. The bottom panel breaks it down by fraud type. As stated above there are 7 types of fraud.

TYPE 1 Fraud

Type 1 fraud is fraud that involves revenue recognition. It consists of recording revenue too soon or in wrong periods, and/or recording bogus revenue or revenue that has no economic substance, or revenue that has side agreements attached. This is the most common type of fraud.

AAER NO 1674 is an example of type 1 fraud. This AAER involves an internet retailer, "800 America.com, Inc.." The chief executive officer, chief financial officer, and a director of 800America.com "created fictitious periodic bank statements, checks, invoices and a general ledger, which they supplied to 800America's auditor." Through this, "they were able to report millions in fictitious earnings, revenues, expenses, and assets (AAER 1674)."

Type 2 Fraud

Type 2 fraud is expense fraud. It consists of not recording expenses or shifting expenses to the wrong periods. This is the second most common type of fraud.

America Online committed type 2 fraud. Between 1995 and 1996, America Online was capitalizing advertising cost and cost of obtaining new subscribers that should have been expensed (AAER 1257).

Type 3

Type 3 fraud is one time restructuring gains fraud. It includes big baths, bogus or improper one-time charges, and taking improper expenses one time.

An example of type 3 fraud involves a company called Consolidated Data, Inc. In AAER 1421 it states, "In March 1999, Consolidated - a small software company with minimal operations at the time - acquired the software in exchange for restricted shares of consolidated stock. Shortly thereafter, Consolidated issued a press release claiming that it had just acquired a new software program for \$10,000,000 in cash and stock. In fact, the stock Consolidated exchanged for the software had a substantially lower value at the time of the acquisition; moreover, the company which sold the software to Consolidated had acquired the software for \$410,000 just six months earlier. In the two weeks following the issuance of this press release, Consolidated's stock price climbed from under \$1 to a high of \$32 per share." This is an example of type 3 fraud.

Type 4

Type 4 fraud is failing to record liabilities. An example of type 4 fraud involves a company named Tyco International Ltd. In AAER 1627 it states, "Dennis Kozlowski, the former chief executive officer and chairman of Tyco's board of directors, and Mark H. Swartz, the former chief financial officer and a director, granted themselves hundreds of millions of dollars in secret low interest and interest-free loans from the company that they used for personal expenses. They then covertly caused the company to forgive tens of millions of dollars of those outstanding loans, again without disclosure to investors as required by the federal securities laws"

Type 5

Type 5 fraud is miscellaneous fraud. It consists of every type of fraud that did not fit into the other six categories.

M & A West, Inc committed this type of fraud. In AAER 1440 it states, "during 1999 and 2000 Kelly, Gilak, Eck and Medley arranged a series of so-called reverse mergers between various MAWI operating divisions or related companies and publicly-traded shell companies with no operations. The mergers resulted in the formation of four publicly traded companies. This caused them to reaped more than \$20 million in illegal profits by selling unregistered securities to investors, in violation of the registration provisions of the federal securities laws"

Type 6

Type 6 fraud is failure or purposely not recording losses. An example of this type of fraud involves Members Services Corporation. By year-end 1991, the oil and gas properties for Members Services Corporation were nearly worthless. Moreover, MSC lost all of its ownership interest in OSEC through litigation in August 1991. However, Members Services Corporation did not record any of these losses (AAER 983).

Type 7

Type 7 fraud involves recording more assets than what the company actually has. International Nesmont Industrial Corporation committed type 7 fraud. They painted brass bars gold in order to make them look like they had more gold inventory than they actually did (AAER 940).

Overall, across fraud types, fraud firms have larger net sales, number of employees R & D expenditures and current ratios. Fraud firms are also universally less profitable as show by their earnings per share and return on equity.

Interestingly, even though fraud firms are larger in net sales, firms that commit any of the following: revenue recognition, expense fraud, failed to record losses or recorded bogus assets; were firms with fewer total assets than their industry median. Firms who failed to record losses were also the only firms who had less R & D expenditures than the median for their industry. Firms that committed expense fraud had lower interest coverage ratio, while firms committing other types of fraud had interest coverage ratios larger than the industry medians

GRAPH 2B

Comparison of fraud firms by fraud type

Graph 2b sorts firms by type of fraud, and compares the financial ratios and statistics between the averages for all firms. As with graph 2, the top panel shows statistics for all fraud firms. The bottom panel breaks it down by fraud type.

While fraud firms are generally large firms, the largest fraud firms (as shown by net sales, total assets and number of employees) concentrate their frauds in the following categories: fraudulently claiming large one-time restructuring gains, failing to record liabilities, failing to record losses, committing expense fraud, or misc.

Firms that fraudulently claim a large one-time restructuring gain have a return on equity well above the median for all fraud firms. Firms that fail to record liabilities also have a return on equity that is higher than the median for fraud firms.

Firm profitability does not seem to be related to the type of fraud they commit. The median earning per share for all fraud types with the exception of type 7 (recording bogus assets) is within 3 cents of the median for all fraud firms. Firms that record bogus assets are considerably more profitable than the median.

Median research and development is low for all firm types, this is because there are so few observations that have that variable among fraud committing firms.

Firms committing revenue recognition or fail to record losses (i.e., propping up net income) are much more liquid than firms that commit the other types of fraud. However, it is possible that their revenue recognition fraud was recording bogus accounts receivable which would make their current ratio appear larger.

Firms committing most types of fraud had interest coverage ratios close to the median, with the exception of firms that had bogus one-time gains. These firms had an interest coverage ratio much lower than the median. It is possible that they reported fictitious one-time gains in an attempt to avoid violating debt covenants.

Firms that commit revenue recognition fraud have higher debt/equity ratios implying less debt. Firms committing expense fraud have a debt/equity ratio that is lower than the median for fraud firms.

Graph 3

Fraud by firm Size

Graph 3 sorts firms by size of financial ratio. For example in the first panel (Panel 3a) firms are split into ten categories based on market capitalization(price per share*number of shares outstanding), i.e., size. 0 meaning a small firm and a 9 meaning it is a large firm. The idea here is to test whether size is related to the type of fraud committed. There are only two fraud categories that appear to be related to size. Forty-five percent of the firms committing one-time gain frauds (3) are in the largest 10 percent of all fraud firms; while firms that record more assets (7) are in the smallest 10 percent of fraud firms.

In panel 3b firms are sorted based on return on equity (income before (extraordinary items +income tax)/common stock). There are no apparent patterns in the types of frauds firms commit based on their return on equity.

Panel 3c sorts on earnings per share (net income – dividends for preferred stock/average outstanding shares of common stock). There appears to be a pattern here

where the most profitable firms commit one time gains (3), fail to record liabilities (4) misc.(5), or fail to record losses (6).

Panel 3d sorts by debt to equity ratio (total liabilities/total equity). Firms with the largest debt to equity ratios tend to commit one-time gain fraud, fail to record liabilities, and fail to record losses.

Panel 3e sorts by size of interest coverage ratio (income before extraordinary items + income taxes/interest expense). There does not appear to be a pattern here either. So it appears that ability to make interest payments does not have an influence on the type of fraud committed.

Graph 4

Fraud by Industry

Most frauds were committed by firms in the Rubber, Plastics, Leather, Glass, Metal and Industrial machinery products firms (SIC 3000). This is true in every fraud category with the exception of failure to record losses, which was committed most often by financial institutions.

Conclusion

I found that firms that commit fraud and receive an AAER from the SEC are large firms. This might be because large firms commit more fraud or the SEC concentrates on larger firms because it is more cost effective for them or they serve as better examples. The other outstanding trait is that fraud firms are less profitable than the average firm in their industry. This may give them incentive to try to cook the books to appear more profitable than they are. I also found that firms in the industry category Rubber, Plastics,

leather, glass, metal and other machinery products (i.e., heavy industries) are the most likely to commit fraud. Auditors must be aware of these characteristics and plan an audit accordingly.

GRAPH 1

NUMBER OF INSTANCES WHERE AAER FIRMS HAD STATS ABOVE OR BELOW MEDIAN FOR THE INDUSTRY

% above or below industry average	MARKET CAPITALIZATION		NET SALES		TOTAL Assetts		# OF EMPLOYEES	
	SMC	BMC	SNS	BNS	STA	BT A	SEMP	BEMP
	129	291	157	263	149	271	143	277
	0.307143	0.692857	0.37381	0.62619	0.354762	0.645238	0.340476	0.659524
% above or below	DEBT TO EQUITY RATIO		EARNING PER SHARE		RESEARCH AND DEVELOPMENT		CURRENT RATIO	
	SDE	BDE	SEPS	BEPS	SRD	BRD	SCR	BCR
	138	28	179	241	83	337	169	251
	0.831325	0.168675	0.42619	0.57381	0.197619	0.802381	0.402381	0.597619
% above or below	RETURN ON EQUITY		Interest Coverage Ratio					
	SROE	BROE	SIC	BIC				
	189	231	147	273				
	0.45	0.55	0.35	0.65				

Graph 2

Shows the percentage difference between firm medians
and industry median with each type of fraud

Highest percent difference between firms who committed fraud and the industry

Lowest percent difference between firms who committed fraud and the industry

F = Firm
I = Industry
D = Percent difference
R&D = Research and Development

	NET SALES			TOTAL ASSETS			# EMPLOYEES			Return on Equity			Earnings Per share		
	F	I	D	F	I	D	F	I	D	F	I	D	F	I	D
Median	108.01	0.89	119.83	73.07	63.74	0.15	89.24	41.96	1.13	0.56	51.38	-0.99	0.09	0.32	-0.71
TYPE 1	104.29	0.68	152.06	61.13	63.74	-0.04	53.41	37.66	0.42	0.53	44.42	-0.99	0.09	0.29	-0.67
TYPE 2	79.93	0.91	86.67	81.52	81.57	0.00	93.07	43.47	1.14	0.54	57.80	-0.99	0.10	0.33	-0.70
TYPE 3	340.04	2.46	137.03	1411.19	43.18	31.68	1438.91	84.80	15.97	6.15	1233.98	-1.00	0.11	0.28	-0.61
TYPE 4	244.15	1.51	161.20	112.95	63.05	0.79	254.09	43.26	4.87	0.80	46.51	-0.98	0.12	0.25	-0.53
TYPE 5	109.28	1.21	89.35	115.53	55.75	1.07	175.88	55.30	2.18	0.07	51.38	-1.00	0.12	0.31	-0.60
TYPE 6	128.94	1.96	64.84	52.64	62.20	-0.15	144.91	69.22	1.09	0.46	65.77	-0.99	0.08	0.29	-0.71
TYPE 7	59.90	0.62	95.71	31.30	61.28	-0.49	35.26	74.39	-0.53	0.14	54.65	-1.00	0.16	0.57	-0.72

	R&D			Current Ratio			Interest Coverage Ratio			D/E Ratio		
	F	I	D	F	I	D	F	I	D	F	I	D
Median	1.00	0.10	8.63	4.13	0.10	40.26	1.81	1.58	0.15	0.79	1.93	-0.59
TYPE 1	1.00	0.10	8.57	5.12	0.08	63.04	2.04	1.88	0.09	1.65	2.02	-0.18
TYPE 2	1.00	0.08	10.95	1.06	0.17	5.23	1.53	2.47	-0.38	0.67	1.90	-0.65
TYPE 3	1.00	0.09	9.56	0.43	0.05	7.64	1.07	0.04	24.17	1.23	1.35	-0.09
TYPE 4	1.00	0.12	7.67	3.68	0.27	12.51	1.57	0.70	1.25	0.94	1.65	-0.43
TYPE 5	1.00	0.11	8.17	1.96	0.08	22.79	1.60	2.22	-0.28	0.79	1.87	-0.58
TYPE 6	0.00	0.08	-1.00	10.98	0.30	36.23	1.74	0.67	1.60	0.79	1.98	-0.60
TYPE 7	1.00	0.11	8.34	3.40	0.37	8.31	1.56	0.16	8.64	1.04	1.83	-0.43

Graph 2B

Shows the % difference between each fraud type and the median for all fraud firms

Highest percent difference between firms who committed fraud and the median for all fraud firms

Lowest percent difference between firms who committed fraud and the median for all fraud firms

F = Median for all fraud firms
 F%D = difference between median for specific type of fraud and all fraud firms
 R&D = Research and Development
 BOLD = Above median for all fraud firms

	NET SALES		TOTAL ASSETS		# EMPLOYEES		Return On Equity		Earnings Per Share		R&D		Current Ratio		Interest Coverage		D/E Ratio	
	F	F%D	F	F%D	F	F%D	F	F%D	F	F%D	F	F%D	F	F%D	F	F%D	F	F%D
Median	108.01	1.00	73.07	1.00	89.24	1.00	0.56	1.00	0.09	1.00	1.00	1.00	4.13	1.00	1.81	1.00	0.79	1.00
TYPE 1	104.29	0.97	61.13	0.84	53.41	0.60	0.53	0.95	0.09	0.99	1.00	1.00	5.12	1.24	2.04	1.13	1.65	2.08
TYPE 2	79.93	0.74	81.52	1.12	93.07	1.04	0.54	0.97	0.10	1.05	1.00	1.00	1.06	0.26	1.53	0.84	0.67	0.85
TYPE 3	340.04	3.15	1411.19	19.31	1438.91	16.12	6.15	11.02	0.11	1.16	1.00	1.00	0.43	0.10	1.07	0.59	1.23	1.56
TYPE 4	244.15	2.26	112.95	1.55	254.09	2.85	0.80	1.43	0.12	1.23	1.00	1.00	3.68	0.89	1.57	0.86	0.94	1.19
TYPE 5	109.28	1.01	115.53	1.58	175.88	1.97	0.07	0.13	0.12	1.30	1.00	1.00	1.96	0.48	1.60	0.88	0.79	1.00
TYPE 6	128.94	1.19	52.64	0.72	144.91	1.62	0.46	0.83	0.08	0.88	0.00	0.00	10.98	2.66	1.74	0.96	0.79	1.00
TYPE 7	59.90	0.55	31.30	0.43	35.26	0.40	0.14	0.24	0.16	1.65	1.00	1.00	3.40	0.82	1.56	0.86	1.04	1.31

Graph 3a

P = Percent of fraud committed by each firm

TOT = Total

0 is smallest firm size and 9 is biggest

Highest Percent of firms who committed fraud with industry size

Smallest percent with industry size

Obs	rnc	sftype1	sftype2	sftype3	sftype4	sftype5	sftype6	sftype7
1	.	53.00 P	14.00 14.00	7.00 P	19.00 P	17.00 P	4.00 P	21.00 P
2	0	14.00 0.08	4.00 0.06	0.00 0.00	1.00 0.04	3.00 0.09	4.00 0.17	9.00 0.33
3	1	21.00 0.11	6.00 0.10	1.00 0.09	5.00 0.19	4.00 0.11	2.00 0.09	1.00 0.04
4	2	21.00 0.11	6.00 0.10	1.00 0.09	0.00 0.00	3.00 0.09	1.00 0.04	3.00 0.11
5	3	18.00 0.10	14.00 0.23	1.00 0.09	4.00 0.15	4.00 0.11	1.00 0.04	1.00 0.04
6	4	20.00 0.11	5.00 0.08	2.00 0.18	2.00 0.07	3.00 0.09	1.00 0.04	3.00 0.11
7	5	16.00 0.09	7.00 0.11	0.00 0.00	1.00 0.04	6.00 0.17	3.00 0.13	2.00 0.07
8	6	19.00 0.10	7.00 0.11	0.00 0.00	5.00 0.19	0.00 0.00	4.00 0.17	4.00 0.15
9	7	18.00 0.10	8.00 0.13	1.00 0.09	1.00 0.04	3.00 0.09	3.00 0.13	2.00 0.07
10	8	21.00 0.11	3.00 0.05	0.00 0.00	3.00 0.11	4.00 0.11	2.00 0.09	1.00 0.04
11	9	17.00 0.09	2.00 0.03	5.00 0.45	5.00 0.19	5.00 0.14	2.00 0.09	1.00 0.04
TOT		185.00 1.00	62.00 1.00	11.00 1.00	27.00 1.00	35.00 1.00	23.00 1.00	27.00 1.00

Graph 3b

Obs	rroe	sftype1	sftype2	sftype3	sftype4	sftype5	sftype6	sftype7
1	.	39.00 P	12.00 P	5.00 P	17.00 P	15.00 P	3.00 P	15.00 P
2	0	22.00 0.11	8.00 0.13	2.00 0.15	3.00 0.10	2.00 0.05	1.00 0.04	0.00 0.00
3	1	24.00 0.12	3.00 0.05	1.00 0.08	1.00 0.03	2.00 0.05	4.00 0.17	2.00 0.06
4	2	19.00 0.10	6.00 0.09	0.00 0.00	3.00 0.10	3.00 0.08	2.00 0.08	3.00 0.09
5	3	15.00 0.08	8.00 0.13	1.00 0.08	3.00 0.10	6.00 0.16	2.00 0.08	5.00 0.15
6	4	20.00 0.10	7.00 0.11	2.00 0.15	2.00 0.07	5.00 0.14	3.00 0.13	3.00 0.09
7	5	25.00 0.13	7.00 0.11	3.00 0.23	4.00 0.14	2.00 0.05	3.00 0.13	2.00 0.06
8	6	13.00 0.07	6.00 0.09	0.00 0.00	3.00 0.10	5.00 0.14	2.00 0.08	9.00 0.27
9	7	17.00 0.09	8.00 0.13	2.00 0.15	5.00 0.17	3.00 0.08	4.00 0.17	4.00 0.12
10	8	24.00 0.12	4.00 0.06	1.00 0.08	4.00 0.14	3.00 0.08	2.00 0.08	2.00 0.06
11	9	20.00 0.10	7.00 0.11	1.00 0.08	1.00 0.03	6.00 0.16	1.00 0.04	3.00 0.09
TOT		199.00 1.00	64.00 1.00	13.00 1.00	29.00 1.00	37.00 1.00	24.00 1.00	33.00 1.00

Graph3c

Obs	reps	sftype1	sftype2	sftype3	sftype4	sftype5	sftype6	sftype7
1	.	41.00 P	13.00 P	6.00 P	17.00 P	15.00 P	3.00 P	15.00 P
2	0	18.00 0.09	10.00 0.16	2.00 0.17	3.00 0.10	2.00 0.05	3.00 0.13	0.00 0.00
3	1	21.00 0.11	6.00 0.10	0.00 0.00	1.00 0.03	6.00 0.16	2.00 0.08	0.00 0.00
4	2	20.00 0.10	6.00 0.10	0.00 0.00	1.00 0.03	5.00 0.14	2.00 0.08	5.00 0.15
5	3	17.00 0.09	7.00 0.11	1.00 0.08	2.00 0.07	3.00 0.08	1.00 0.04	5.00 0.15
6	4	22.00 0.11	4.00 0.06	1.00 0.08	4.00 0.14	4.00 0.11	3.00 0.13	7.00 0.21
7	5	27.00 0.14	12.00 0.19	1.00 0.08	4.00 0.14	1.00 0.03	0.00 0.00	2.00 0.06
8	6	22.00 0.11	3.00 0.05	1.00 0.08	2.00 0.07	2.00 0.05	5.00 0.21	3.00 0.09
9	7	21.00 0.11	4.00 0.06	0.00 0.00	1.00 0.03	3.00 0.08	1.00 0.04	4.00 0.12
10	8	15.00 0.08	9.00 0.14	5.00 0.42	8.00 0.28	4.00 0.11	2.00 0.08	3.00 0.09
11	9	14.00 0.07	2.00 0.03	1.00 0.08	3.00 0.10	7.00 0.19	5.00 0.21	4.00 0.12
TOT		197.00 1.00	63.00 1.00	12.00 1.00	29.00 1.00	37.00 1.00	24.00 1.00	33.00 1.00

Graph3d

Obs	rde	sftype1	sftype2	sftype3	sftype4	sftype5	sftype6	sftype7
1	.	39.00	12.00 P	5.00 P	17.00 P	15.00 P	3.00 P	15.00 P
2	0	18.00 0.09	9.00 0.14	2.00 0.15	4.00 0.14	5.00 0.14	2.00 0.08	6.00 0.18
3	1	21.00 0.11	4.00 0.06	0.00 0.00	2.00 0.07	2.00 0.05	5.00 0.21	5.00 0.15
4	2	21.00 0.11	6.00 0.09	0.00 0.00	2.00 0.07	4.00 0.11	1.00 0.04	3.00 0.09
5	3	27.00 0.14	8.00 0.13	0.00 0.00	1.00 0.03	2.00 0.05	0.00 0.00	3.00 0.09
6	4	26.00 0.13	4.00 0.06	0.00 0.00	1.00 0.03	0.00 0.00	2.00 0.08	4.00 0.12
7	5	19.00 0.10	9.00 0.14	0.00 0.00	3.00 0.10	6.00 0.16	1.00 0.04	2.00 0.06
8	6	19.00 0.10	9.00 0.14	1.00 0.08	3.00 0.10	6.00 0.16	0.00 0.00	2.00 0.06
9	7	15.00 0.08	5.00 0.08	4.00 0.31	5.00 0.17	3.00 0.08	4.00 0.17	2.00 0.06
10	8	10.00 0.05	6.00 0.09	2.00 0.15	6.00 0.21	5.00 0.14	7.00 0.29	5.00 0.15
11	9	23.00 0.12	4.00 0.06	4.00 0.31	2.00 0.07	4.00 0.11	2.00 0.08	1.00 0.03
TOT		199.00 1.00	64.00 1.00	13.00 1.00	29.00 1.00	37.00 1.00	24.00 1.00	33.00 1.00

Graph3E

Obs	ric	sftype1	sftype2	sftype3	sftype4	sftype5	sftype6	sftype7
1	.	6.00	19.00 P	6.00 P	19.00 P	17.00 P	10.00 P	22.00 P
2	0	17.00 0.10	3.00 0.05	1.00 0.08	1.00 0.04	3.00 0.09	2.00 0.12	1.00 0.04
3	1	16.00 0.10	8.00 0.14	0.00 0.00	0.00 0.00	3.00 0.09	1.00 0.06	5.00 0.19
4	2	12.00 0.07	7.00 0.12	0.00 0.00	3.00 0.11	4.00 0.11	1.00 0.06	4.00 0.15
5	3	14.00 0.09	8.00 0.14	1.00 0.08	4.00 0.15	5.00 0.14	1.00 0.06	1.00 0.04
6	4	15.00 0.09	5.00 0.09	3.00 0.25	4.00 0.15	2.00 0.06	3.00 0.18	1.00 0.04
7	5	11.00 0.07	3.00 0.05	4.00 0.33	2.00 0.07	9.00 0.26	4.00 0.24	4.00 0.15
8	6	20.00 0.12	6.00 0.11	1.00 0.08	3.00 0.11	1.00 0.03	4.00 0.24	2.00 0.08
9	7	20.00 0.12	6.00 0.11	1.00 0.08	2.00 0.07	2.00 0.06	1.00 0.06	3.00 0.12
10	8	17.00 0.10	8.00 0.14	1.00 0.08	6.00 0.22	3.00 0.09	0.00 0.00	2.00 0.08
11	9	20.00 0.12	3.00 0.05	0.00 0.00	2.00 0.07	3.00 0.09	0.00 0.00	3.00 0.12
TOT		162.00 1.00	57.00 1.00	12.00 1.00	27.00 1.00	35.00 1.00	17.00 1.00	26.00 1.00

Graph 4

FRAUD BY INDUSTRY

highest percent of fraud by industry

lowest percent of fraud by industry

Obs	ind	sftype1		sftype2		sftype3		sftype4		sftype5		sftype6		sftype7	
1	.	30.00		10.00		1.00		12.00		8.00		4.00		12.00	
2	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.02	0.00	0.00	0.00	0.00
3	1000	4.00	0.02	5.00	0.08	0.00	0.00	4.00	0.12	3.00	0.07	2.00	0.09	7.00	0.19
4	2000	27.00	0.13	8.00	0.12	1.00	0.06	4.00	0.12	6.00	0.14	4.00	0.17	6.00	0.17
5	3000	64.00	0.31	21.00	0.32	5.00	0.29	13.00	0.38	15.00	0.34	4.00	0.17	8.00	0.22
6	4000	6.00	0.03	3.00	0.05	0.00	0.00	1.00	0.03	1.00	0.02	0.00	0.00	0.00	0.00
7	5000	21.00	0.10	8.00	0.12	4.00	0.24	2.00	0.06	8.00	0.18	3.00	0.13	4.00	0.11
8	6000	15.00	0.07	3.00	0.05	3.00	0.18	8.00	0.24	2.00	0.05	6.00	0.26	1.00	0.03
9	7000	53.00	0.25	14.00	0.21	4.00	0.24	1.00	0.03	7.00	0.16	4.00	0.17	4.00	0.11
10	8000	13.00	0.06	3.00	0.05	0.00	0.00	0.00	0.00	1.00	0.02	0.00	0.00	5.00	0.14
11	9000	5.00	0.02	1.00	0.02	0.00	0.00	1.00	0.03	0.00	0.00	0.00	0.00	1.00	0.03
TOTAL		208.00	1.00	66.00	1.00	17.00	1.00	34.00	1.00	44.00	1.00	23.00	1.00	36.00	1.00

number of different types of fraud by industry

1000s = Mining and Construction

2000s = Food, Textiles, furnishings, paper, Chemicals

3000s = Rubber, Plastics, Leather, Glass, Metal, industrial machinery products

4000s = Transportation and Communications

5000s = Wholesale and Retail

6000s = Financial institutions

7000s = Service Companies

8000s = Educational, Health and Legal

9000s = Government, Public, and National Security